

✓ (4) rejected claims 7-9, 14, 25-27, 32, 43-45, and 50 under 35 USC 103(a) as being unpatentable over Buechel et al. in view of Lemelson et al.;

(5) rejected claims 12, 15, 30, 33, 48 and 51 under 35 USC 103(a) as being unpatentable over Buechel et al. in view of Arpac et al.;

✓ (6) objected to claims 11, 29 and 47 as being dependent upon a rejected base claim, but indicated that they would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims; and

(7) rejected claims 1-54 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-36 of U.S. Patent No. 6,261,322.

With respect to Item 1 above, no response appears necessary.

With respect to Item 2 above, Applicants have now amended independent claims 1, 19 and 37 so as to more clearly define the present invention with respect to the prior art.

More particularly, independent claim 1, as now amended, calls for an implant comprising a substrate; a structured surface formed on at least a portion of said substrate; and a biocompatible coating deposited on at least a fraction of said structured surface; wherein said structured surface includes a

Support? plurality of undercuts, and said biocompatible material coats said plurality of undercuts in said structured surface; and wherein said coating is formed by a thin film technique adapted to deposit said coating on line-of-sight hidden surfaces within said plurality of undercuts of said structured surface.

Applicants believe that Buechel et al. disclose a prosthesis having a substrate formed from a metallic alloy with a thin titanium film deposited on the surface thereof. As such, Buechel et al. essentially disclose a thin titanium surface film.

Applicants believe that Buechel et al. do not disclose Applicants' implant comprising a substrate, a structured surface deposited on the substrate, wherein the structured surface includes a plurality of undercuts, and a biocompatible coating deposited on the structured surface by a thin film technique adapted to deposit the coating on line-of-sight hidden surfaces within the plurality of undercuts of the structured surface.

Accordingly, independent claim 1 is believed to be in condition for allowance, and allowance thereof is respectfully requested.

Claims 2, 3, 10, 13 and 16, which depend from independent claim 1, are believed to be in condition for allowance at least for the reasons advanced above. Accordingly, allowance of claims 2, 3, 10, 13 and 16 is also respectfully requested.

Claims 17 and 18, which each comprise the implant of independent claim 1, are also believed to be in condition for allowance for at least the reasons advanced above. Accordingly, allowance of claims 17 and 18 is also respectfully requested.

Independent claim 19 as now amended calls for a composition for an implant, comprising a biocompatible material coated on a structured surface defined by a substrate; wherein said structured surface includes a plurality of undercuts, and said biocompatible material coats said plurality of undercuts in said structured surface; and wherein said coating is formed by a thin film technique adapted to deposit said coating on line-of-sight hidden surfaces within said plurality of undercuts of said structured surface.

Applicants believe that Buechel et al. do not disclose this structure, i.e., a substrate, a structured surface including a plurality of undercuts, and a coating deposited on the structured surface by a thin film technique so as to coat line-of-sight hidden surfaces within the plurality of undercuts. Accordingly, independent claim 19 is believed to be in condition for allowance, and allowance thereof is respectfully requested.

Claims 20, 21, 27, 28, 31 and 34 are believed to be in condition for allowance at least for the reasons advanced above.

Accordingly, allowance of claims 20, 21, 27, 28, 31 and 34 is also respectfully requested.

Claims 35 and 36, which each comprise the composition of independent claim 19, are also believed to be in condition for allowance for at least the reasons advanced above. Accordingly, allowance of claims 35 and 36 is also respectfully requested.

Independent claim 37 as now amended calls for an implant comprising a substrate; a structured surface formed on a portion of said substrate; and a biocompatible coating deposited on at least a fraction of said structured surface, wherein said structured surface includes a plurality of undercuts, and said biocompatible coating coats said plurality of undercuts in said structured surface; and wherein said coating is formed by a thin film technique adapted to deposit said coating on line-of-sight hidden surfaces within said plurality of undercuts of said structured surface; and wherein said portion of said substrate is to be fixed with tissue-in-growth and/or on-growth for stability.

Applicants believe that Buechel et al. do not disclose this structure, i.e., an implant comprising a substrate, a structured surface formed on the substrate that includes a plurality of undercuts, and a biocompatible material coating the plurality of

undercuts in the structured surface, the coating being formed by a thin film technique adapted to deposit the coating on line-of-sight hidden surfaces within the plurality of undercuts of the structured surface. Accordingly, independent claim 37 is believed to be in condition for allowance and allowance thereof is respectfully requested.

Claims 38, 39, 45, 46, 49 and 52, which depend from independent claim 37, are believed to be in condition for allowance for at least the reasons advanced above. Accordingly, allowance of claims 38, 39, 45, 46, 49 and 52 is also respectfully requested.

Claims 53 and 54, which each comprise the implant of claim 37, are also believed to be in condition for allowance for at least the above-identified reasons advanced above. Accordingly, allowance of claims 53 and 54 is also respectfully requested.

Claims 6, 8, 24, 26, 42 and 44 have now been cancelled.

With respect to Item 3 above, Applicants have now amended independent claims 1, 19, and 37 so as to more clearly define the present invention with respect to the prior art.

Applicants believe that Homsy discloses an endoprosthesis having a soft porous pad extending distally from the stem tip. Applicants believe that Homsy does not remedy the above-noted

deficiencies of Buechel et al. with respect to claims 1, 19 and 37. Accordingly, claims 2-5 (which depend from independent claim 1), claims 20-23 (which depend from independent claim 19) and claims 38-41 (which depend from independent claim 37) are believed to be in condition for allowance for at least the reasons advanced above. Accordingly, allowance of claims 2-5, 20-23 and 38-41 is therefore respectfully requested.

With respect to Item 4 above, Applicants have now amended independent claims 1, 19 and 37 so as to more clearly distinguish the present invention from the prior art of record.

Applicants believe that Lemelson et al. disclose a process for applying to a substrate an amorphous coating over which a diamond coating is applied. Applicants believe that Lemelson et al. does not remedy the above-noted deficiencies of Buechel et al. with respect to claims 1, 19 and 37. Accordingly, claims 7, 9 and 14 (which depend from independent claim 1), claims 25, 27 and 32 (which depend from independent claim 19) and claims 43, 45 and 50 (which depend from independent claim 37) are believed to be in condition for allowance for at least the reasons advanced above. Allowance of claims 7, 9, 14, 25, 27, 32, 43, 45 and 50 is therefore respectfully requested.

Claims 8, 26 and 44 have now been cancelled.

In response to Item 5 above, Applicants have now amended independent claims 1, 19 and 37 so as to more clearly define the present invention with respect to the prior art of record.

Applicants believe that Arpac et al. disclose nanostructured molded articles and layers produced by a wet chemical process. Applicants believe that Arpac et al. do not remedy the above-noted deficiencies of Buechel et al. with respect to claims 1, 19 and 37. Accordingly, claims 12 and 15 (which depend from independent claim 1), claims 30 and 33 (which depend from independent claim 19) and claims 48 and 51 (which depend from independent claim 37) are believed to be in condition for allowance for at least the reasons advanced above. Allowance of claims 12, 15, 30, 33, 48 and 51 is therefore respectfully requested.

In response to Item 6 above, Applicants wish to thank the Examiner for her indication that claims 11, 29 and 47 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. New independent claims 76-78 correspond to all of the limitations of claims 11, 29 and 47, respectively, including the base claim and any intervening claims. Allowance of independent claims 76-78 is therefore respectfully requested.

In response to Item 7 above, Applicants respectfully request reconsideration of the Examiner's obviousness-type double patenting rejection in view of the present amendment to claims 1, 17 and 37.

Please charge any additional fees due in connection with this submission, or credit any overpayment, to Deposit Account No. 16-0221.

In view of the foregoing, claims 1-54 and 76-78 are believed to be in condition for allowance. Early and favorable reconsideration is therefore respectfully solicited.

Respectfully submitted,

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Version With Markings To Show Changes Made

1. (Amended) An implant, comprising:

a substrate;

a structured surface formed on at least a portion of said substrate; and

a biocompatible coating deposited on at least a fraction of said structured surface;

wherein said structured surface includes a plurality of undercuts, and said <sup>112</sup>[biocompatible material] coats said plurality of undercuts in said structured surface; and

wherein said coating is formed by a thin film technique adapted to deposit said coating on line-of-sight hidden surfaces within said plurality of undercuts of said structured surface.

7. (Amended) The implant of claim 1 [6] wherein said thin film technique includes at least one deposition process selected from the group consisting of physical vapor deposition and chemical vapor deposition.

9. (Amended) The implant of claim 1 [8], wherein said structured surface is porous and said biocompatible material coats interconnected pores beneath said structured surface.

19. (Amended) A composition for an implant, comprising:  
a biocompatible material coated on a structured surface defined by a substrate;

wherein said structured surface includes a plurality of undercuts, and said biocompatible material coats said plurality of undercuts in said structured surface; and

wherein said coating is formed by a thin film technique adapted to deposit said coating on line-of-sight hidden surfaces within said plurality of undercuts of said structured surface.

25. (Amended) The composition of claim 19 [24], wherein said thin film technique includes at least one deposition process selected from the group consisting of physical vapor deposition and chemical vapor deposition.

27. (Amended) The composition of claim 19 [26], wherein said structured surface is porous and said biocompatible material coats interconnected pores beneath said structured surface.

37. (Amended) An implant comprising:

a substrate;

a structured surface formed on a portion of said substrate;

and

a biocompatible coating deposited on at least a fraction of said structured surface,

wherein said structured surface includes a plurality of undercuts, and said biocompatible coating coats said plurality of undercuts in said structured surface; and

wherein said coating is formed by a thin film technique adapted to deposit said coating on line-of-sight hidden surfaces within said plurality of undercuts of said structured surface;

wherein said portion of said substrate is to be fixed with tissue-in-growth and/or on-growth for stability.

43. (Amended) The implant of claim 37 [42], wherein said thin film technique includes at least one deposition process selected from the group consisting of physical vapor deposition and chemical vapor deposition.

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